We claim:

1. A Group TDMA method of providing multiple-access in a smultiple destination, multiple node wireless network, said network including a first destination having a first group of nodes (Group 1) within communication range thereof and a second destination having a second group of nodes (Group 2) within communication range thereof, wherein both said first and second destinations include a third group of nodes (Group 3) within communication range thereof of both said first and second destinations, and wherein each group of nodes is assigned a periodically recurring set of time slots for transmitting to a designated destination, comprising:

providing a frame of a specified duration; dividing the frame into a number of fixed-length time slots;

assigning a fraction $1-x$ of the time slots to said first and second groups of nodes;

assigning a fraction x of the time slots to said third group;

subdividing said third group into a fourth group of nodes (Group 31) and a fifth group of nodes (Group 32);

assigning a fraction y of the fraction x time slots to said fourth group for transmission to said first destination and a fraction $1-y$ of the fraction x time slots to said fifth group for transmission to said second destination;

applying a multiple-access protocol in each group in its assigned set of time slots; and

optimizing the values of x and y in order to realize the maximum possible value of stable throughput rate λ^*.

2. A method as in claim 1, further comprising adjusting the frame duration as necessary to facilitate the implementation of the optimal values of x and y.

3. A method as in claim 1, wherein the optimal values of x and y are determined according to the equations:

$$x^* = \frac{f_3}{f_3 + \max(f_1, f_2)}$$

$$y^* = \frac{f_{31}}{f_3}$$

$$\lambda^* = \frac{S_{\max}}{f_3 + \max(f_1, f_2)}$$

where

x* is the optimal value of x, y* is the optimal value of y, and λ is the overall arrival rate to the network and is divided among the groups as follows:

f_i = fraction of arrivals from Group i, $i \in \{1, 2, 3\}$

f_{3j} = fraction of arrivals from Group $3j$, $j \in \{1, 2\}$

and where $f_1 + f_2 + f_{31} + f_{32} = 1$ and $f_3 = f_{31} + f_{32}$.

4. A method as in claim 1, wherein nodes in said first group are allowed to transmit during the slots that are allocated to said fifth group and nodes in said second group are allowed to transmit during the slots that are allocated to said fourth group.

5. A method as in claim 1, wherein the network comprises more than two destinations.

6. A method as in claim 1, wherein the multiple destination, multiple node wireless network uses a FCFS protocol.

7. A method as in claim 6, further comprising adjusting the frame duration as necessary to facilitate the implementation of the optimal values of x and y.

8. A method as in claim 6, wherein the optimal values of x and y are determined according to the equations:

$$x^* = \frac{f_3}{f_3 + \max(f_1, f_2)}$$

$$y^* = \frac{f_{31}}{f_3}$$

$$\lambda^* = \frac{S_{\max}}{f_3 + \max(f_1, f_2)}$$

where

x* is the optimal value of x, y* is the optimal value of y, and λ is the overall arrival rate to the network and is divided among the groups as follows:

f_i = fraction of arrivals from Group i, $i \in \{1, 2, 3\}$

f_{3j} = fraction of arrivals from Group $3j$, $j \in \{1, 2\}$

and where $f_1 + f_2 + f_{31} + f_{32} = 1$ and $f_3 = f_{31} + f_{32}$.

9. A method as in claim 6, wherein nodes in said first group are allowed to transmit during the slots that are allocated to said fifth group and nodes in said second group are allowed to transmit during the slots that are allocated to said fourth group.

10. A method as in claim 6, wherein the network comprises more than two destinations.

11. A method as in claim 1, wherein the multiple destination, multiple node wireless network uses a slotted Aloha protocol.

12. A method as in claim 11, further comprising adjusting the frame duration as necessary to correspond to the optimal values of x and y.

13. A method as in claim 11, wherein the optimal values of x and y are determined according to the equations:

$$x^* = \frac{f_3}{f_3 + \max(f_1, f_2)}$$

$$y^* = \frac{f_{31}}{f_3}$$

$$\lambda^* = \frac{S_{max}}{f_3 + \max(f_1, f_2)}$$

where

x* is the optimal value of x, y* is the optimal value of y, and λ is the overall arrival rate to the network and is divided among the groups as follows:

f_i = fraction of arrivals from Group i, $i \in \{1, 2, 3\}$

f_{3j} = fraction of arrivals from Group $3j$, $j \in \{1, 2\}$

and where $f_1 + f_2 + f_{31} + f_{32} = 1$ and $f_3 = f_{31} + f_{32}$.

14. A method as in claim 11, wherein nodes in said first group are allowed to transmit during the slots that are allocated to said fifth group and nodes in said second group are allowed to transmit during the slots that are allocated to said fourth group.

15. A method as in claim 11, wherein the network comprises more than two destinations.

16. A Group TDMA multiple access, multiple destination, multiple node wireless network, comprising:

a first destination having a first group of nodes (Group 1) within communication range thereof;

a second destination having a second group of nodes (Group 2) within communication range thereof;

wherein said first and second destinations further include a third group of nodes (Group 3) within communication range thereof of both said first and second destinations and wherein each group of nodes is assigned a periodically recurring set of time slots for transmitting to a designated destination; and

a processor, said processor programmed for:

dividing the frame into a number of fixed-length time slots;

assigning a fraction $1-x$ of the time slots to said first and second groups of nodes;

assigning a fraction x of the time slots to said third group;

subdividing said third group into a fourth group of nodes (Group 31) and a fifth group of nodes (Group 32);

assigning a fraction y of the fraction x time slots to said fourth group for transmission to said first destination and a fraction $1-y$ of the fraction x time slots to said fifth group for transmission to said second destination;

applying a multiple-access protocol to each group in its assigned set of time slots; and

optimizing the values of x and y in order to realize the maximum possible value of stable throughput rate λ^*.

17. A network as in claim 16, wherein the frame duration is adjusted as necessary to correspond to the optimal values of x and y.

18. A network as in claim 16, wherein the optimal values of x and y are determined according to the equations:

$$x^* = \frac{f_3}{f_3 + \max(f_1, f_2)}$$

$$y^* = \frac{f_{31}}{f_3}$$

$$\lambda^* = \frac{S_{max}}{f_3 + \max(f_1, f_2)}$$

where

x* is the optimal value of x, y* is the optimal value of y, and λ is the overall arrival rate to the network and is divided among the groups as follows:

f_i = fraction of arrivals from Group i, $i \in \{1, 2, 3\}$

f_{3j} = fraction of arrivals from Group $3j$, $j \in \{1, 2\}$

and where $f_1 + f_2 + f_{31} + f_{32} = 1$ and $f_3 = f_{31} + f_{32}$.

19. A network as in claim 16, wherein nodes in said first group are allowed to transmit during the slots that are allocated to said fifth group and nodes in said second group are allowed to transmit during the slots that are allocated to said fourth group.

20. A network as in claim 16, wherein the network comprises more than two destinations.

21. A network as in claim 16, wherein the network uses a FCFS protocol.

22. A network as in claim 21, wherein the frame duration is adjusted as necessary to correspond to the optimal values of x and y.

23. A network as in claim 21, wherein the optimal values of x and y are determined according to the equations:

$$x^* = \frac{f_3}{f_3 + \max(f_1, f_2)}$$

$$y^* = \frac{f_{31}}{f_3}$$

$$\lambda^* = \frac{S_{\max}}{f_3 + \max(f_1, f_2)}$$

where

x* is the optimal value of x, y* is the optimal value of y, and λ is the overall arrival rate to the network and is divided among the groups as follows:

f_i = fraction of arrivals from Group i, $i \in \{1, 2, 3\}$

f_{3j} = fraction of arrivals from Group $3j$, $j \in \{1, 2\}$

and where $f_1 + f_2 + f_{31} + f_{32} = 1$ and $f_3 = f_{31} + f_{32}$.

24. A network as in claim 21, wherein nodes in said first group are allowed to transmit during the slots that are allocated to said fifth group and nodes in said second group are allowed to transmit during the slots that are allocated to said fourth group.

25. A method as in claim 21, wherein the network comprises more than two destinations.

26. A network as in claim 16, wherein the network uses a slotted Aloha protocol.

27. A network as in claim 26, wherein the frame duration is adjusted as necessary to correspond to the optimal values of x and y.

28. A network as in claim 26, wherein the optimal values of x and y are determined according to the equations:

$$x^* = \frac{f_3}{f_3 + \max(f_1, f_2)}$$

$$y^* = \frac{f_{31}}{f_3}$$

$$\lambda^* = \frac{S_{\max}}{f_3 + \max(f_1, f_2)}$$

where

x* is the optimal value of x, y* is the optimal value of y, and λ is the overall arrival rate to the network and is divided among the groups as follows:

f_i = fraction of arrivals from Group i, $i \in \{1, 2, 3\}$

f_{3j} = fraction of arrivals from Group $3j$, $j \in \{1, 2\}$

and where $f_1 + f_2 + f_{31} + f_{32} = 1$ and $f_3 = f_{31} + f_{32}$.

29. A method as in claim 26, wherein nodes in said first group are allowed to transmit during the slots that are allocated to said fifth group and nodes in said second group are allowed to transmit during the slots that are allocated to said fourth group.

30. A network as in claim 26, wherein the network comprises more than two destinations.